

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A system for monitoring the performance of a hydrocarbon reformer, said reformer producing a reformat output, said system comprising:

a) a quantitative hydrocarbon sensor; and
b) means a slipstream for providing a sample of the reformat output of said reformer ~~to said sensor; and~~
c) a source of air for combining with said sample of the reformat output to form a mixture, wherein said mixture is provided to said quantitative hydrocarbon sensor for measuring hydrocarbon content of said reformat.

2. (Original) A system in accordance with Claim 1 wherein said sample providing is continuous.

3. (Original) A system in accordance with Claim 1 wherein said hydrocarbon is methane.

4. (Original) A system in accordance with Claim 1 wherein said hydrocarbon sensor is selected from the group consisting of catalytic, optical, and solid oxide electrode..

5. (Cancelled).

6. (Currently amended) A system ~~in accordance with Claim 5 further comprising means for monitoring the performance of a hydrocarbon reformer, said reformer producing a reformate output, said system comprising:~~

- a) a quantitative hydrocarbon sensor;
- b) a slipstream for providing a sample of said reformate output of said reformer to said sensor;
- c) a source of air for providing air to said sensor; and
- d) a control for combining said air and said reformate sample in a fixed and predetermined ratio.

7. (Currently amended) A system in accordance with Claim 6 wherein ~~said means control for combining includes at least one positive displacement pump.~~

8. (Currently amended) A system in accordance with Claim 6 wherein ~~said means control for combining includes a double-headed positive displacement pump.~~

9. (Original) A system in accordance with Claim 1 wherein said reformer is a source of gaseous fuel for a fuel cell.

10. (Currently amended) A system in accordance with Claim 1 further comprising means a monitoring system for displaying and alarming the methane content of said reformate sample.

11. (Currently amended) A system in accordance with Claim 1 wherein said reformer supplies said reformate output to a fuel cell, further comprising means a control for shutting down a said fuel cell.

12. (Currently amended) A fuel cell system, comprising:

- a) a fuel cell stack;
- b) a hydrocarbon reformer for supplying gaseous fuel in the form of reformate to said stack;
- c) a quantitative hydrocarbon sensor for measuring hydrocarbon content of said reformate; and
- b) means d) a slipstream for providing a sample of said reformate to said sensor; and
- e) a source of air for combining with said sample of the reformate output to form a mixture, wherein said mixture is provided to said quantitative hydrocarbon sensor for measuring hydrocarbon content of said reformate.

13. (New) A system in accordance with Claim 12 further comprising a positive displacement pump for combining said sample of the reformat with said air, wherein said positive displacement pump positively closes off flow of said sample of the reformat to said quantitative hydrocarbon sensor when said fuel cell is idle.

14. (New) A system in accordance with Claim 1 further comprising a positive displacement pump for metering a desired flow of said mixture through said quantitative hydrocarbon sensor.

15. (New) A system for monitoring the performance of a hydrocarbon reformer, said reformer producing a reformat output, said system comprising:

- a) a quantitative hydrocarbon sensor;
- b) a slipstream for providing a sample of said reformat output of said reformer to said sensor;
- c) a source of air for providing air to said sensor; and
- d) a control for combining said air and said reformat sample so that a lower explosive limit of 4 percent hydrogen is not exceeded.